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The Herbal Dispatch

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Contents:

The Herbal Dispatch

A monthly publication of the Medicinal Botanical Program

Mountain State University
P.O. Box 9003
Beckley, WV 25801

The goal of this newsletter is to maintain readers informed of the Program's education, research and outreach activities and events; and of results of the latest research on the chemistry, cultivation, processing and preventive and therapeutic use of herbs, botanicals and vegetables

Mario R. Morales
Editor & Publisher

Herbal Sciences: A New BS Degree at MSU

In the fall of 2005, Mountain State University and the Medicinal and Botanical Program will start offering the Bachelor of Science Degree in Herbal Sciences. Several important medicinal plants are native to the mountains of West Virginia. These plants are profitable cash crops in other states and in Europe. They can also be the bases for the development of a new non-timber industry in West Virginia. The state has the plants and the appropriate environment but lacks the production, processing and marketing infrastructure, and professionals to undertake such commercial activities.

Mountain State University is committed to the formation of the professionals needed for the development of this new industry. The objective of the Herbal Sciences program is to provide the professionals that will be needed for the development, growth and promotion of the herb industry in West Virginia.

The program is for students interested in pursuing careers in production, processing and marketing of herbs and botanicals, which are raw materials for the medicine, food, cosmetics and hygiene industries. The curriculum gives a solid foundation in basic sciences and develops knowledge and skills in herb production and processing, and small business creation and marketing.

The freshman and sophomore years are founded in basic sciences such as biology, chemistry and mathematics. The junior and senior years concentrate in applied sciences in the fields of agriculture, herbal medicine, management and marketing.

Upon completion of this program the student will be highly qualified to enter the job market and find employment in herb industries as a grower, producer, manufacturer, representative, business owner, business manager, quality specialist, teacher, instructor, researcher, industry worker, etc. It also prepares students for continuation of graduate studies in a diversity of agricultural fields.

See curriculum on page 2.

Sign up Now for the Bachelor Degree in Herbal Sciences!

Register now for the new Herbal Sciences Degree offered by the Medicinal Botanical Program of Mountain State University in Beckley, West Virginia. We offer interesting classes, hands-on laboratories, exciting field trips, and the opportunity to plan and conduct your own field studies at our local research farm. The university has a beautiful campus that offers a friendly atmosphere to succeed in any academic program. It has new buildings with spacious classrooms, a library, modern teaching equipment and a dedicated faculty. Campus life offers opportunities to socialize and meet new people, make new friends, and develop lasting relationships. It also offers affordable housing and meal programs.

BS in Herbal Sciences–Academic Program

YEAR 1–FALL		Credits
BIOL 101	General Biology I	3
BIOL 101L	General Biology I Laboratory	1
CHEM 211	College Chemistry I	3
CHEM 211L	College Chemistry I Laboratory	1
MATH 116	Elementary Statistics	3
SPAN 101	Spanish I	3
ENGL 101	English Composition I	3
TOTAL		17

YEAR 1–SPRING		
BIOL 102	General Biology II	3
BIOL 102L	General Biology II Laboratory	1
CHEM 212	College Chemistry II	3
CHEM 212L	College Chemistry II Laboratory	1
MATH 120	College Algebra	3
SPAN 102	Spanish II	3
ENGL 102	English Composition II	3
TOTAL		17

YEAR 2–FALL		
CHEM 301	Organic Chemistry I	3
CHEM 301L	Organic Chemistry I Laboratory	1
BIOL 219	Microbiology	3
BIOL 219L	Microbiology Laboratory	1
HERB 200	Plant Propagation	3
MKTG 206	Principles of Marketing	3
IT 106	Basic Computer Applications	3
TOTAL		17

YEAR 2–SPRING		
CHEM 302	Organic Chemistry II	3
CHEM 302L	Organic Chemistry Laboratory II	1
BIOL 340	Genetics	3
BIOL 340L	Genetics Laboratory	1
HERB 205	Aromatic and Medicinal Plants	3
MGMT 240	Communication and Presentation	3
HLTH 301	Physical Assessment Skills	3
TOTAL		17

YEAR 3–FALL		
BIOL 222	Fundamentals of Nutrition	3
HERB 300	Herb Processing, Quality Control and Standardization	3
HERB 310	Phytopharmacognosy	3
SSCI 301	Appalachian Studies	3
MGMT 304	Organizational Behavior	3
TOTAL		15

YEAR 3–SPRING		
BIOL 351	Botany	3
BIOL 351L	Botany Laboratory	1
BIOL 301	Advanced Ecology	3
BIOL 301L	Advanced Ecology Laboratory	1
MKTG 333	Promotional Management	3
HERB 305	Herb Classification and Identification	3
HERB 315	Herbal Drug Preparations	2
TOTAL		16

YEAR 4–FALL		
HERB 400	Herb Production	3
HERB 410	Phytotherapy	3
HERB 490	Capstone Seminar	3
IDS 303	Research Methods	3
ENTR 201	Introduction to Entrepreneurship	3
TOTAL		15

YEAR 4–SPRING		
HERB 425	Herbal Sciences Internship/Practicum	15
	Degree Total	129

Contributor's Corner

Cinnamon:
A Medicinal Spice
Hassan Amjad, M.D

The cinnamon tree (*Cinnamomum zeylanicum*, Lauraceae) is native to Ceylon, present day Sri Lanka. It grows up to 30 feet high, has shiny and smooth twigs, ovate oblong leaves, silky flowers and large seeds. It is widely cultivated around the world. Trees are usually cut when they are 6-7 year old and branches when they are 1-3 inches in diameter. Commercial cinnamon is the dried inner bark of the stems. There are three commercial species of cinnamon: *C. zeylanicum*, the original species only accepted in Britain; *C. cassia* (Chinese cinnamon), native to Vietnam and Central America and used in the United States; and *C. buramannii*, native to Indonesia. The essential oil of the stem bark (max. 4%) is dominated by the two phenylpropanoids cinnamaldehyde (65 to 75%) and eugenol (5 to 10%); other phenylpropanoids (safrole, coumarine [0.6%] cinnamic acid esters), mono- and sesquiterpenes, although occurring in traces, do significantly influence the taste of cinnamon; another trace component relevant for the quality is 2-heptanone (methyl-n-amyl-ketone). The essential oil of the leaves (1%) consists mainly of eugenol (70 to 95%) and can be used as a substitute for clove; it may also contain small amounts (1 to 5%) of cinnamaldehyde, benzyl benzoate, linalool and β-caryophyllene. The major component in the essential oil of the root bark is camphor (60%); this oil is not used commercially

Medicinal Uses
The medicinal use of cinnamon dates to antiquity. The earliest medical account is given by Herodotus, 413 B.C. It is also mentioned in the Old Testament. It has antifungal, antibacterial and antiviral properties. It promotes motility and lipolysis, inhibits ulcers, and increases insulin sensitivity.

Gastrointestinal disorders: It is useful for diarrhea, nausea, cramps and as an aromatic astringent. A combination of ginger and cinnamon is quite effective for severe gastroenteritis and vomiting.

Diabetes mellitus: Bioactive compounds extracted from cinnamon booster insulin activity and thus improve diabetis control. It seems very promising in herbal treatment of diabetes along with Stevia. Cinnamon contains high amounts of chromium, which may be a contributing factor for its beneficial effect in diabetics.

Rheumatism: It is an effective remedy, widely used in many ethnic herbal preparations for the treatment of rheumatism. In Kamp medicine, which is traditional Chinese medicine in Japan, it is as an important ingredient, along with bupleurum root, ginger, licorice and ginseng, in an effective herbal combination for arthritis.

Candida infection: It has been found useful for yeast infection of the mouth when other antifungal agents are ineffective.

Bacterial infections: Cinnamon extract, along with thyme, has shown effectiveness against *H. Pylori* infection. It is an effective agent against food borne pathogens such as *Staphylococcus*, *E. coli*, and *Salmonella*. A combination of nutmeg oil and cinnamon is very effective against *Listeria* species.

Antiviral: Our studies have shown that it is potentially effective in viral pharyngitis and flu-like viral syndrome. We have treated several hundred patients at present. A tea made with boiling cinnamon and black tea and honey added is the most effective therapy for chest congestion, sinusitis, flu-like symptoms and to prevent flu-like virus infections (see recipe below).

A Natural Recipe to Prevent the Flu
Hassan Amjad, MD

It is good to have a flu vaccine, but some people still get sick and need alternative treatment.

The bark of the cinnamon tree (*Cinnamomum zeylanicum*) is not only a popular spice but also an effective antiviral drug; it prevents and treats flu symptoms caused by several flu viruses. Over the last five years I have used the following recipe to treat flu symptoms:

Place a few cinnamon sticks (no powder) in a cup of water and boil it on low heat for five minutes. Add a bag of black tea and honey to taste. Drink two cups per day.

Several hundred West Virginians have taken this recipe and they are proof of its effectiveness.

It may also help to better control the blood sugar in diabetics.

Contributor's Biographical sketch

Dr. Hassan Amjad, M.D., F.A.C.P., has been a practicing physician in Beckley, WV, for almost 27 years. His specialty training is in internal medicine, blood disorders, cancer, tropical medicine, infectious diseases and hygiene. He has been interested in botanic medicine for over 25 years. He is the author of *Wild Flowers of West Virginia*, *Herbs as Medicine*, *Pomegranate*, and several monographs on botanic medicine. He is currently writing the book *Medicinal Plants of Appalachia*, which will be available in Jan 05. He is a clinical associate professor of medicine at Marshall University in Huntington, West Virginia.

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Contributor's Corner (Cont'd)

This mulch is very important. It keeps the soil from freezing and thawing rapidly during the winter.

Growing Ginseng Seedlings
David C. Carman

To produce ginseng seedling roots for transplanting, stratified seed should be planted in prepared beds, early fall to early winter (September through November).

Seed beds should be prepared well in advance (during spring through early summer). Select a location on a slope facing East to North, with good shade. Soil should be naturally rich, containing plenty of humus (good build-up of decayed vegetation), making it capable of retaining moisture and providing natural soil nutrients. Beds are made down the slope. Work the soil six inches deep; remove loose stones and roots that interfere with working up the bed. Three feet wide makes an ideal bed width with additional two feet wide walkways down each side. The walkways provide easy access for weeding, mulching, etc. Rows are spaced six inches apart across the bed. Seeds are planted about one inch apart and about one inch deep in the loose soil and with one inch of well rotted leaf mulch on top of the bed. This mulch is very important. It keeps the soil from freezing and thawing rapidly during the winter, preventing the seeds from heaving up out of the soil and becoming exposed on the surface.

Bone meal is an excellent natural organic fertilizer; although not necessary, the only soil amendment I recommend for a ginseng seed bed. You can broadcast one pint (about one pound) of bone meal per square yard, during final bed work-up. Bone meal provides long lasting phosphorus and calcium.

You can now look forward to seeing your little treasures come up in the spring. When all are completely up, add one inch of leaf compost between the rows. At the end of the growing season, before leaf fall, apply about two inches of leaves on the entire bed. At the end of the second year of growth, dig and transplant your roots to their permanent location. Two year old seeding roots are ideal size and vigor for transplanting.

Appalachian Plant Profile: Stone Root

Please contact your state's Department of Forestry for laws and regulations concerning stone root harvest in your area.

Submitted by:
Dean Myles
Horticulture Technician
Medicinal Botanical Program, MSU

Collinsonia canadensis is commonly known as stone root, richweed, or horse balm. The a perennial herb is a member of the mint family and native to North America. It can be identified by its square stem and large oval shaped leaves. These leaves are coarsely toothed and have an opposite arrangement. The plant grows to a height of 2 to 3 feet. The yellow, lemon scented flowers appear in July and persist until September. Stone root can be found growing in moist woodlands. The roots and leaves are astringent and have been used as poultice to treat burns, sprains, and bruises. Root tea has been used for laryngitis, indigestion and bladder ailments. James Duke reports that *C. canadensis* contains more than 13,000 parts per million of rosmarinic acid. Stone root seeds can be sown outdoors in late fall or early spring. Germination usually takes place after 30 to 60 days. The optimum temperature is between 65 and 70 degrees. Root divisions can also be used to increase the number of plants. Freshly harvested roots are very hard. To divide the roots, simply take a shovel and split them into pieces. Place the pieces in pots or directly in the soil, in a selected area. Stone root is currently bringing 2-3 cents per pound. As with any plant, stone root's beauty is worth more than its economic potential.

Herbal Medicine Research

Cinnamon Improves Glucose and Lipids of People with Type 2 Diabetes

Khan, A.; Safdar, M.; Khan, M.; Khattak, K.; and Anderson, R.
Diabetes Care 26:3215-3218, 2003

Objective—The objective of this study was to determine whether cinnamon improves blood glucose, triglyceride, total cholesterol, HDL cholesterol, and LDL cholesterol levels in people with type 2 diabetes.

Research Design and Methods—A total of 60 people with type 2 diabetes, 30 men and 30 women aged 52.2 ± 6.32 years, were divided randomly into six groups. Groups 1, 2, and 3 consumed 1, 3, or 6 g of cinnamon daily, respectively, and groups 4, 5, and 6 were given placebo capsules corresponding to the number of capsules consumed for the three levels of cinnamon. The cinnamon was consumed for 40 days followed by a 20-day washout period.

Results—After 40 days, all three levels of cinnamon reduced the mean fasting serum glucose (18–29%), triglyceride (23–30%), LDL cholesterol (7–27%), and total cholesterol (12–26%) levels; no significant changes were noted in the placebo groups. Changes in HDL cholesterol were not significant.

Conclusions—The results of this study demonstrate that intake of 1, 3, or 6 g of cinnamon per day reduces serum glucose, triglyceride, LDL cholesterol, and total cholesterol in people with type 2 diabetes and suggest that the inclusion of cinnamon in the diet of people with type 2 diabetes will reduce risk factors associated with diabetes and cardiovascular diseases.

Intake of 1, 3, or 6 g of cinnamon per day reduces serum glucose, triglyceride, LDL cholesterol, and total cholesterol in people with type 2 diabetes

***Harpgophytum procumbens* for osteoarthritis and low back pain: A systematic review**

Gagnier, J.J.; Chrubasik, S. and Manheimer, E.
BMC Complementary and Alternative Medicine 2004, **4:**13

Background-The objective of this review is to determine the effectiveness of *Harpagophytum procumbens* preparations in the treatment of various forms of musculoskeletal pain.

Methods-Several databases and other sources were searched to identify randomized controlled trials, quasi-randomized controlled trials, and controlled clinical trials testing *Harpagophytum* preparations in adults suffering from pain due to osteoarthritis or low back pain.

Results-Given the clinical heterogeneity and insufficient data for statistical pooling, trials were described in a narrative way, taking into consideration methodological quality scores. Twelve trials were included with six investigating osteoarthritis (two were identical trials), four low back pain, and three mixed-pain conditions.

Conclusions-There is limited evidence for an ethanolic *Harpagophytum* extract containing less than <30 mg harpagoside per day in the treatment of knee and hip osteoarthritis. There is moderate evidence of effectiveness for (1) the use of a *Harpagophytum* powder at 60 mg harpagoside in the treatment of osteoarthritis of the spine, hip and knee; (2) the use of an aqueous *Harpagophytum* extract at a daily dose of 100 mg harpagoside in the treatment of acute exacerbations of chronic non-specific low back pain; and (3) the use of an aqueous extract of *Harpagophytum procumbens* at 60 mg harpagoside being non-inferior to 12.5 mg rofecoxib per day for chronic non-specific low-back pain (NSLBP) in the short term. Strong evidence exists for the use of an aqueous *Harpagophytum* extract at a daily dose equivalent of 50 mg harpagoside in the treatment of acute exacerbations of chronic NSLBP.

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About the Medicinal Botanical Program

This Program was created as a result of a Specific Cooperative Agreement between Mountain State University and the USDA/ARS-Appalachian Farming Systems Research Center in Beaver, WV. The establishment of this agreement came through the efforts of Senator Robert C. Byrd and a Congressional Appropriation. The mission of the Program is to promote the medicinal plant industry through research, education, marketing and outreach. Educational offerings include a Bachelor degree in Herbal Sciences, a symposium and workshops. The Program also conducts research on the chemistry, propagation and cultivation of native medicinal plants.

Subscriptions

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mmorales@mountainstate.edu

or

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Contributions

Dear growers, processors, marketers, and practitioners, would you like to share your knowledge and personal experience on how to produce, process, market and use herbs and aromatic and medicinal plants with our readers? It is simple. You just have to put your ideas on paper (typed or handwritten) and mail them to us. We will publish your article as space becomes available in subsequent issues of the Herbal Dispatch.

Optional: you may want also to send a short biographical sketch, so our readers can know you better.

Please send contributions to the e-mail or the postal mailing address provided above.

Advertisements

MBP Searches for Assistant Director

POSITION:
We are looking for the right professional to fill the position of Assistant Director of the Medicinal Botanical Program at MSU, Beckley, WV. This is a 12 month, grant funded, administrative faculty position with an annual salary of 35-38K.

QUALIFICATIONS:
The successful candidate should have a MS or PhD degree with experience in herbal medicine, natural products, phytochemistry, botany, or a related field with strong background in medicinal plants. Experience with conference planning, curriculum development, teaching and grant writing is desirable.

CONTACT:
M. Kay Stump, Director
Human Resources
Mountain State University
P O Box 9003
Beckley, WV 25802-9003

Fax: (304) 253-1222

Email:
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